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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,417	07/09/2004	Yu-Chih Cheng	PMXP0183USA	4416

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EXAMINER
XIAO, KE

ART UNIT	PAPER NUMBER
2629	

NOTIFICATION DATE	DELIVERY MODE
10/29/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/710,417	CHENG, YU-CHIH	
	Examiner	Art Unit	
	Ke Xiao	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6, 8-10 and 12-14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ledbetter (US 2003/0025673).

Regarding **Claim 6**, Ledbetter teaches a pointing device comprising:

a housing having base plate (Ledbetter, Figs. 18 and 25 base plate);

a wheel module comprising (Ledbetter, Fig. 25 element 430):

a pedestal having a swing shaft extended there through, the pedestal capable of swinging left and right about the swing shaft, the swing shaft pivotally connected to the base plate of the housing (Ledbetter, Fig. 25 wheel cradle and element 452);

a wheel installed on the pedestal and rotatable about the rotary shaft that extends from the left of the pedestal to the right and is perpendicular to the swing shaft, the wheel including an optical gate having at least one light-passing area and one light-blocking area (Ledbetter, Fig. 19, 20 and 25 elements 400a, 430 and 482);

a rotation-sensing module for detecting the rotation of the wheel about the rotary shaft and generating a corresponding rotation-sensing signal, the rotation-sensing module (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]) comprising:

a light emitting element installed on one side of the pedestal for emitting a light beam (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]); and

a light receiving element installed on the other side of the pedestal, wherein when the optical gate rotates with the wheel, the light-passing areas and the light-blocking areas alternately pass between the light emitting element and the light receiving element (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]); and

a swing-sensing module installed on the housing for detecting the swing of the pedestal about the swing shaft and for generating a corresponding swing-sensing signal (Ledbetter, Fig. 25 elements 471, 473, and 474).

Regarding **Claim 8**, Ledbetter further teaches that a front end of the swing shaft is vertically fixed to the base plate of the housing and a rear end of the swing shaft is vertically free to move up and down pivoting about the front end of the swing shaft (Ledbetter, Fig. 25 elements 452 and 490), the pointing device further comprising:

a click sensor installed in the housing for detecting vertical movement of the pedestal and generating a corresponding click-sensing signal (Ledbetter, Fig. 25 elements 452 and 475).

Regarding **Claim 9**, Ledbetter further teaches that the housing further comprises:

at least one button (Ledbetter, Fig. 18 element 314); and

at least one button sensor for detecting the press of the button and generating a corresponding button-sensing signal (Ledbetter, Fig. 18 and 25 elements 314 and 478).

Regarding **Claim 10**, Ledbetter teaches pointing device comprising:

a housing having base plate (Ledbetter, Figs. 18 and 25 base plate);

a wheel module comprising (Ledbetter, Fig. 25 element 430):

a pedestal having a swing shaft extended there through, the pedestal capable of swinging left and right about the swing shaft, the swing shaft pivotally connected to the base plate of the housing, wherein a front end of the swing shaft is vertically fixed to the base plate of the housing and a rear end of the swing shaft is vertically free to move up and down pivoting about the front end of the swing shaft (Ledbetter, Fig. 25 element 452 and 490);

a wheel installed on the pedestal and rotatable about the rotary shaft that extends from the left of the pedestal to the right and is perpendicular to the swing shaft (Ledbetter, Fig. 25 element 442);

a click sensor installed in the housing for detecting vertical movement of the pedestal and generating a corresponding click-sensing signal (Ledbetter, Fig. 25 element 475); and

a swing-sensing module installed on the housing for detecting the swing of the pedestal about the swing shaft and for generating a corresponding swing-sensing signal (Ledbetter, Fig. 25 element 471, 473 and 474).

Regarding **Claim 12**, Ledbetter further teaches a rotation-sensing module installed on the pedestal for detecting the rotation of the wheel about the rotary shaft and generating a corresponding rotation-sensing signal (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]).

Regarding **Claim 13**, Ledbetter further teaches an optical gate is disposed on the wheel, the optical gate having at least one light-passing area and one light-blocking area (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]), the rotation-sensing module further comprising:

a light emitting element installed on one side of the pedestal for emitting a light beam; and a light receiving element installed on the other side of the pedestal, wherein when the optical gate rotates with the wheel, the light-passing areas and the light-blocking areas alternately pass between the light emitting element and the light receiving element (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]).

Regarding **Claim 14**, Ledbetter teaches that the housing further comprises:

at least one button (Ledbetter, Fig. 18 element 314); and

at least one button sensor for detecting the press of the button and generating a corresponding button-sensing signal (Ledbetter, Fig. 18 and 25 elements 314 and 478).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ledbetter (US 2003/0025673) in view of Tsai (US 2003/0151594).

Regarding **Claim 1**, Ledbetter teaches a pointing device comprising:

a housing having base plate (Ledbetter, Fig. 18 and 25 base plate);

a wheel module comprising (Ledbetter, Fig. 25 element 430):

a pedestal having a swing shaft extended there through, the pedestal capable of swinging left and right about the swing shaft, the swing shaft pivotally connected to the base plate of the housing (Ledbetter, Fig. 25 element 442 and 446);

a wheel installed on the pedestal and rotatable about a rotary shaft that extends from the left of the pedestal to the right and is perpendicular to the swing shaft (Ledbetter, Fig. 25 element 442); and

a swing-sensing module installed on the housing for detecting the swing of the pedestal about the swing shaft and for generating a corresponding swing-sensing signal (Ledbetter, Fig. 25 elements 471, 473 and 474).

Ledbetter fails to teach that the wheel includes a step surface having at least one concave segment and at least one convex segment on an inner circumference of the

wheel; and a step unit having a step body fixed on the pedestal and a push pad elastically connected to the step body, the push pad contacting the step surface and moving back and forth relative to the step body as a result of the push pad contacting the concave and convex segments when the wheel is rotated.

Tsai teaches a wheel including a step surface having at least one concave segment and at least one convex segment on an inner circumference of the wheel (Tsai, Fig. 7 Inner circumference of the mouse wheel); and

a step unit having a step body fixed on the pedestal and a push pad elastically connected to the step body, the push pad contacting the step surface and moving back and forth relative to the step body as a result of the push pad contacting the concave and convex segments when the wheel is rotated (Tsai, Fig. 7 element 52).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concave/convex surfaces and step unit as taught by Tsai to the rotary wheel of Ledbetter in order to provide a tactile response to the rotation of the mouse wheel.

Regarding **Claim 2**, Ledbetter further teaches that a front end of the swing shaft is vertically fixed to the base plate of the housing and a rear end of the swing shaft is vertically free to move up and down pivoting about the front end of the swing shaft (Ledbetter, Fig. 25 element 452 and 490), the pointing device further comprising:

a click sensor installed in the housing for detecting vertical movement of the pedestal and generating a corresponding click-sensing signal (Ledbetter, Fig. 25 element 475).

Regarding **Claim 3**, Ledbetter further teaches a rotation-sensing module installed on the pedestal for detecting the rotation of the wheel about the rotary shaft and generating a corresponding rotation-sensing signal (Ledbetter, Fig. 25 element 482).

Regarding **Claim 4**, Ledbetter further teaches that an optical gate is disposed on the wheel, the optical gate having at least one light-passing area and one light-blocking area (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]), the rotation-sensing module further comprising:

a light emitting element installed on one side of the pedestal for emitting a light beam (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]); and

a light receiving element installed on the other side of the pedestal, wherein when the optical gate rotates with the wheel, the light-passing areas and the light-blocking areas alternately pass between the light emitting element and the light receiving element (Ledbetter, Fig. 25 element 482, Pg. 9 paragraph [0097]).

Regarding **Claim 5**, Ledbetter further teaches that the housing further comprises:

at least one button (Ledbetter, Fig. 18 element 314); and

at least one button sensor for detecting the press of the button and generating a corresponding button-sensing signal (Ledbetter, Fig. 18 and 25 elements 314 and 478).

Regarding **Claims 7 and 11**, Ledbetter fails to teach that the wheel includes a step surface having at least one concave segment and at least one convex segment on an inner circumference of the wheel, the pointing device further comprising:

a step unit having a step body fixed on the pedestal and a push pad elastically connected to the step body, the push pad contacting the step surface and moving back and forth relative to the step body as a result of the push pad contacting the concave and convex segments when the wheel is rotated.

Tsai teaches a wheel including a step surface having at least one concave segment and at least one convex segment on an inner circumference of the wheel (Tsai, Fig. 7 Inner circumference of the mouse wheel); and

a step unit having a step body fixed on the pedestal and a push pad elastically connected to the step body, the push pad contacting the step surface and moving back and forth relative to the step body as a result of the push pad contacting the concave and convex segments when the wheel is rotated (Tsai, Fig. 7 element 52).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concave/convex surfaces and step unit as taught by Tsai to the rotary wheel of Ledbetter in order to provide a tactile response to the rotation of the mouse wheel.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571) 272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 16th, 2007 - kx -

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER